



TWIN STATE ENVIRONMENTAL CORP.

P.O. Box 719, Commercial Park, 1A Huntington Road, Richmond, VT 05477

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December 28, 1998

Mr. Timothy Vallee
R.L. Vallee, Inc.
280 South Main Street
P.O. Box 192
St. Albans, Vermont 05478

RE: Initial Site Investigation
Mobil North - Route 7 - St. Albans, Vermont
TSEC Project #98-066

98-2374

Dear Mr. Vallee:

Enclosed is the Initial Site Investigation Report which was prepared to evaluate subsurface conditions following the removal of one (1) 6,000 gallon capacity and two (2) 10,000 gallon capacity underground storage tanks (USTs) at the above referenced SITE. These USTs, which formerly contained gasoline for retail distribution, were permanently closed on April 14, 1998.

Six (6) soil borings were advanced within and adjacent to the former UST cavity on July 8, 1998. Four (4) soil borings were completed as permanent groundwater monitoring wells. Groundwater samples were collected from the wells on July 24, 1998, and were tested for volatile organic compounds (VOCs) via US EPA Method 8021B. A sample was also collected from the SITE water supply well and analyzed for VOCs via US EPA Method 524.2

Data returned from these analyses, along with field observations, indicate that petroleum-related contamination has impacted soil and groundwater beneath the SITE. The SITE supply well, however, has not been impacted.

We have recommended that additional groundwater wells be placed further to the north of the former USTs and that the SITE enter into a quarterly groundwater monitoring program. SITE conditions will be reevaluated after one (1) year, and recommendations will be made accordingly.

Please call to discuss our findings or other matters of concern.

Sincerely,
TWIN STATE ENVIRONMENTAL CORPORATION


Jon Berntsen
Project Manager

cc: Mr. Chuck Schwer, Sites Management Section

WASTE MANAGEMENT
DEC 29 9 23 AM '98



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Phase (check one)	Type (check one)
<input checked="" type="checkbox"/> Site Investigation	<input type="checkbox"/> Work Scope
<input type="checkbox"/> Corrective Action Feasibility Investigation	<input checked="" type="checkbox"/> Technical Report
<input type="checkbox"/> Corrective Action Plan	<input type="checkbox"/> PCF Reimbursement Request
<input type="checkbox"/> Corrective Action Summary Report	<input type="checkbox"/> General Correspondence
<input type="checkbox"/> Operations & Monitoring Report	

INITIAL SITE INVESTIGATION

December 28, 1998

Mobil North
366 Swanton Road
Route 7

St. Albans, Vermont

VT - DEC 98-2374

UST Facility #29

TSEC Project # 98-066

WASTE MANAGEMENT

Dec 29 9 23 AM '98

Facility Owned By:

R.L. Vallee, Inc.

280 South Main Street

P.O. Box 192

St. Albans, VT 05478

Contact: Mr. Timothy Vallee

Written By:

Jon Berntsen
Project Manager

Reviewed By:

Roger C. Binkerd
Engineer

Roger C. Binkerd
Bink

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Twin State Environmental Corp.

1.0 INTRODUCTION

This Initial Site Investigation (ISI) Report has been prepared by Twin State Environmental Corporation (TSEC) to present the findings of environmental conditions encountered during a recent subsurface site investigation at Mobil North, located at 366 Swanton Road (Route 7) in St. Albans, Vermont (SITE) (see SITE Location Map, **Figure 1**). The investigation was initiated in response to conditions encountered during the removal of three gasoline underground storage tanks (USTs) from the SITE in April 1998. All work was conducted under the State of Vermont Expressway Investigation Program. Approval to participate under the Expressway Program was granted by Mr. Bob Butler of the State of Vermont Sites Management Section (VT SMS) in June 1998.

2.0 BACKGROUND

The three (3) USTs formerly containing gasoline, were removed from the SITE on April 14, 1998, as part of a UST system upgrade. These USTs consisted of one (1) 6,000 gallon capacity special grade gasoline UST, one (1) 10,000 gallon capacity regular grade gasoline UST, and one (1) 10,000 gallon capacity super grade gasoline UST. These USTs, reportedly installed in 1985, appeared to be in good to excellent condition. All tank systems were equipped with single wall fiberglass pressure piping and cathodic protection.

Upon uncovering of the USTs, contaminated soils were encountered adjacent to the fill ports and sub-pumps. Volatile organic compound (VOC) concentrations surrounding tank top features were found to range from 1.4 parts per million volume (ppmv) to 623 ppmv as measured by a photoionization detector (PID). Soils at the bottom of the excavation exhibited petroleum staining and PID readings ranging from 0.2 to 616 ppmv.

Based on the degree and extent of contamination discovered during the UST closure assessment, additional investigation was warranted.

3.0 SCOPE OF SERVICES

The following scope of services was performed by TSEC during this investigation:

- A health and safety plan (HASP) was prepared that conforms with OSHA 40 CFR 1910.120.
- DIG SAFE was notified and requested to provide a SITE utility markout (Clearance #982 708 224).
- Six (6) soil borings were advanced using Geoprobe® drilling techniques to investigate the degree and extent of soil and groundwater contamination resulting from the former USTs. Recovered soil

samples were field screened for the presence of volatile organic compounds (VOCs) using a ThermoEnvironmental Instruments photoionization detector (PID) equipped with a 10.6 eV lamp.

- Four (4) groundwater monitoring wells were installed into the above mentioned borings. The wells were developed in accordance with TSEC's standard operating procedures.
- Groundwater samples were collected from the four (4) newly installed monitoring wells, and submitted for analysis at Endyne, Inc. of Williston, Vermont by US EPA Method 8021B for VOCs.
- A water sample was collected from the SITE supply well and analyzed for VOCs via US EPA Methods 524.2.
- Elevations and locations of the newly installed monitoring wells, the soil borings, and existing SITE features were surveyed. The data obtained has been used to create a site plan (**Figure 2**), and a groundwater contour plan (**Figure 3**).
- A survey of sensitive receptors was conducted, focusing on surface water, basements, and private drinking water wells.
- A summary report of the above-mentioned work was prepared.

4.0 SITE LOCATION AND DESCRIPTION

SITE Owner: R.L. Vallee, Inc
280 South Main Street
P.O. Box 192
St. Albans, VT 05478

SITE Address: Mobil North
366 Swanton Road (Route 7)
St. Albans, Vermont 05478

Lot Size: 0.73 acres

Latitude: 44°50'20.31" North

Longitude: 73°04'58.66" West

Zoning: Commercial

Utilities: Water - Private Supply - Connects to two (2) adjacent properties
Sewer - Small scale septic - connecting to two (2) adjacent properties
Electric - Overhead connection to north end of SITE, then underground to west side of SITE building
Telephone - Overhead connection

Structures: One (1) single story gasoline service station building. Two (2) gasoline USTs are present on the southwestern portion of the property

The SITE is located on the west side of Swanton Road (also Route 7) in the north end of St. Albans Town, Vermont (see SITE Location Map, **Figure 1**). The building on-SITE is currently in use as a retail gasoline station and convenience store. The current gasoline storage tanks for the SITE are located in the southwestern portion of the property. These consist of one (1) 15,000 gallon capacity regular grade gasoline UST, and one (1) 12,000 gallon capacity dual chamber UST containing super/special grade gasoline.

The SITE is commercially zoned and is situated in a commercial land use area. The properties adjacent to the SITE consist a vacant lot and wetland to the north and northwest, a shopping plaza to the west, a hardware and autoparts store to the south, and a large shopping mall (Highgate Commons) across Swanton Road to the east.

The topography of the SITE is relatively flat. At the north edge of the SITE, the topography drops suddenly to an elevation approximately 8 ft below SITE grade (ft bg). The nearest potential sensitive receptor identified during this investigation is the SITE supply well which is approximately 40 ft \pm from the former USTs. The closest surface water is an unnamed wetland feature located approximately 200 ft \pm to the northwest of the former USTs (see **Figure 2**, SITE Plan).

5.0 SUBSURFACE EXPLORATION AND RESULTS

The subsurface exploration program was developed to gather data to provide a better understanding of the hydrogeology and contaminant distribution on SITE.

5.1 Advancement of Soil Borings

Six (6) soil borings were advanced by TSEC in locations indicated on **Figure 2**. Logs for these borings are presented in **Appendix A**. These borings were advanced to approximately 16.0 feet bgs. All borings were logged, describing soil strata conditions, and field analyzed with a PID using conventional headspace techniques.

Groundwater flow direction, based on area features, was presumed to be to the northwest. Based on this assumption, borings were advanced using Geoprobe[®] direct push technology at the following locations:

- Soil Boring **B-1** was advanced in the center of the former UST cavity, in order to characterize SITE conditions within the contamination source area. This boring was completed as monitoring well *MW-1*.
- Soil Boring **B-2** was advanced to the east of the former UST cavity, in a presumed crossgradient direction, in an attempt to characterize the lateral extent of the soil and groundwater contamination on SITE. This boring was backfilled with drill cuttings, bentonite, and clay.

- Soil Boring **B-3** was advanced to the west of the former UST cavity, in a presumed crossgradient direction. This boring, installed between the source area and the SITE supply well, was intended to characterize the lateral extent of soil contamination on SITE. This boring was backfilled with drill cuttings, bentonite, and sand to grade.
- Soil Boring **B-4** was advanced to the south of the former USTs in a presumed upgradient direction. This boring was completed as monitoring well **MW-2**.
- Soil Boring **B-5** was advanced to the northeast of the former UST cavity, in a presumed downgradient direction. This boring was completed as monitoring well **MW-3**.
- Soil Boring **B-6** was advanced to the northwest of the former UST cavity, in a presumed downgradient direction. This boring was completed as monitoring well **MW-4**.

General soil conditions encountered at the SITE consisted of a silty sand and gravel fill material overlying a coarse sand, followed by a tight silty till. All borings were terminated approximately two (2) feet into the tight silty layer. Groundwater was encountered between 7.9 and 8.1 ft bgs in borings B-1/MW-1 and B-5/MW-3, respectively.

Contaminated soil was encountered during the advancement of all soil borings, with the highest concentrations of VOCs present in B-1, which is located within the former UST cavity. A headspace analysis performed on the samples collected from this boring indicated VOCs present at concentrations ranging from 31.8 ppmv (15.5 ft bgs) to 2,700+ ppmv (4-8 ft bgs).

PID readings in borings B-2, B-3, B-4, B-5, and B-6 ranged from <0.1 ppmv to 69.8 ppmv (B-6; 8-12 ft). Further description of subsurface materials and contaminant distribution can be found in Appendix A, Boring Logs.

5.2 Monitoring Well Installation and Construction

Monitoring wells are constructed of 1½ x ½-inch diameter schedule 40 polyvinylchloride (PVC) pre-packed monitoring wells with 0.010-inch machine slotted screen. These pre-packed monitoring wells consist of a ½-inch diameter inner screen surrounded by a clean sand filter pack, placed inside a 1½-inch diameter outer screen, and a ½-inch diameter schedule 40 PVC riser. A bentonite seal is placed above the screened section to prevent infiltration of surface water into the formation

Wells were completed with a flush-mounted, water-tight curb box that was set in concrete, and fitted with an expansion plug to avoid surface infiltration to the aquifer. All wells were installed to approximately 13.5 ft bg.

Fine particulates introduced into the formation during drilling and/or installation were removed by developing the new wells. In addition, well development was performed to hydraulically connect the

aquifer and the well, allowing for more accurate determination of *in situ* conditions (i.e. water level, aquifer parameters, and chemical constituents).

5.3 SITE Geology

A summary of the predominant geological units encountered during drilling activities indicated that the SITE is constructed on top of imported fill material. Native materials are encountered below approximately 6.0 ft bg, as indicated by organic material in B-4, and asphalt in B-2. Native materials consist of a medium silty sand overlying a two (2) ft thick layer of coarse sand, followed by tight silty till with clay and gravel. For a more detailed description of geological units, see Boring Logs, Appendix A.

According to published data¹, surficial geologic materials that underlie the SITE consist of wave washed till and marine beach gravel. Reports available concerning the bedrock materials underlying the SITE, indicate the presence of the Middle Cambrian to Early Ordovician age (478-540 million years old) Skeels Corner Slate². The Skeels Corner Slate is characterized of "a black limonitic laminae of quartz silt and dolomite, giving the unit an orange pinstripe appearance."

5.4 SITE Survey

A Topcon AT-G6 auto level was used to perform a stadia survey to identify the location and elevation of the newly installed monitoring wells and soil borings with respect to existing site features. The collected data was used to create the SITE Plan (Figure 2) which includes the location of the newly installed wells and sampling points. The SITE supply well, located to the rear of the SITE building, was used as the site datum.

6.0 COLLECTION OF GROUNDWATER SAMPLES

Groundwater sampling was performed at this SITE by TSEC on July 24, 1998. Samples were collected from the newly installed wells MW-1, MW-2, MW-3 and MW-4. A groundwater sample was also collected from the SITE supply well, located approximately 40± ft to the west of the former USTs.

6.1 Monitoring Well Sample Collection

Prior to sampling, depth to groundwater measurements were collected from all accessible monitoring wells. MW-2 could not be gauged due to an obstruction in the well at approximately 7.0 ft bg. Depth to water ranged from 7.93 ft bg to 8.11 ft bg at monitoring wells MW-1 and MW-3, respectively.

¹ Doll, C.G., editor, 1970, Surficial Geologic Map of Vermont, VT Geological Survey, SGL.

² Mehrtens, C.J. and Hadley, A.C.H., 1995, Stratigraphy and Bedrock Structure of Parts of the St. Albans and Georgia Quadrangles, Northwestern Vermont, VT Geol. Surv., Spec. Bull., no. 17, 17p., SGL, VSL

To allow for a representative groundwater sample, each well was purged of three (3) volumes of water with a new disposable bailer or a peristaltic pump. Purge water from the wells was discharged directly to the ground surface. Sampling at each location was conducted using the bailer which was dedicated to the well.

Quality assurance/Quality control (QA/QC) samples incorporated into this sampling round included one (1) duplicate sample taken from monitor well MW-1 and one (1) field blank. Samples collected from monitoring wells were analyzed via US EPA Method 8021B for VOCs. The SITE supply well sample was analyzed via US EPA Method 524.2 for VOCs. All chemical analyses for this round of groundwater sampling were performed by Endyne Inc. of Williston, Vermont. The results of the groundwater sampling round are discussed in the following sections.

6.2 Supply Well Sampling

A groundwater sample was collected from the cold water tap in the bathroom. The tap was opened, and the water was allowed to run until the temperature equilibrated. Once equilibrium was reached (approximately 1 minute), two (2) 40ml glass vials were preserved with HCl, filled, and capped.

7.0 RESULTS OF SAMPLING ACTIVITIES

7.1 Groundwater Flow Direction

Groundwater levels on SITE were measured by TSEC personnel on July 3, 1998. As previously mentioned, depth to groundwater measurements ranged from 7.93 ft bg to 8.11 ft bg at wells MW-1 and MW-3 respectively. A full analysis of groundwater elevation data is presented in Table 1 (Summary of Groundwater Elevations).

Based on measured depths to groundwater observed in monitoring wells on SITE at the time of sampling, groundwater underlying the SITE has been calculated to flow to the north with a horizontal hydraulic gradient of 0.04 ft/ft. Based on this measured hydraulic gradient (i), the published hydraulic conductivity for silty sands and gravel of 10^{-5} centimeters per second (cm/s) to 10^{-3} cm/s (k), and the assumed porosity value of 30% for this SITE (η), the apparent groundwater flow velocity beneath the SITE can be calculated using the following equation:

$$v_{gw} = \frac{ki}{\eta}.$$

The calculated groundwater velocity beneath the SITE, according to the above equation, is 10^{-5} cm/s to 10^{-7} cm/s (0.1 to 10 ft/year)

A graphical interpretation of the groundwater flow direction is presented on the Groundwater Contour Plan provided as Figure 3.

7.2 Groundwater Analytical Results

Results received from Endyne indicate that petroleum compounds are present in all four (4) groundwater monitoring wells.

The maximum total dissolved levels of benzene, toluene, ethylbenzene, and total xylenes (BTEX) was detected in monitoring well MW-1 at 9,650 micrograms per liter ($\mu\text{g/l}$). Concentrations of total BTEX were also reported in MW-2 (88 $\mu\text{g/l}$), MW-3 (3 $\mu\text{g/l}$), and MW-4 (211 $\mu\text{g/l}$). Benzene was detected above its Vermont Groundwater Enforcement Standard (VGES) level of 5.0 $\mu\text{g/l}$ in MW-1 (2,150 $\mu\text{g/l}$), MW-2 (59.2 $\mu\text{g/l}$), and MW-4 (70.6 $\mu\text{g/l}$). Toluene was also detected above its VGES of 1,000 $\mu\text{g/l}$ in MW-1 at 1,770 $\mu\text{g/l}$.

Concentrations of methyl-tertiary butyl-ether (MTBE) were detected in all monitoring wells at values ranging from 128 $\mu\text{g/l}$ (MW-2) to 7,750 $\mu\text{g/l}$ (MW-1), which are above the VGES of 40 $\mu\text{g/l}$ for this compound. Trimethylbenzene isomers were detected above their respective VGES levels in MW-1 and MW-4, and naphthalene was detected above its VGES of 20 $\mu\text{g/l}$ in MW-1 (921 $\mu\text{g/l}$).

The complete analytical laboratory report from Endyne, is summarized in **Table 2**, and is provided as **Attachment 1**. BTEX and MTBE Isopleth Plans have been presented as **Figures 4** and **5**, respectively.

7.3 Supply Well Analytical Results

The results received from Endyne indicate that there are no target VOCs present in the supply well sample at concentrations that are above method detection levels (MDL).

7.4 QA/QC Results

7.4.1 Field QA/QC

The Relative Percent Difference (RPD) for BTEX in the sample collected from MW-1 and its duplicate, DUP-1 was calculated to be 10.5%. The RPD for MTBE between MW-1 and DUP-1 was calculated to be 11.3%. Typically, a RPD of up to 25% is considered to be an acceptable correlation between duplicate samples.

BTEX and MTBE were not detected above method detection limits in the Field Blank.

7.4.2 Laboratory QA/QC

All laboratory data was evaluated for the following parameters prior to acceptance in this report:

- analysis within holding time;
- correct sample ID's;

- acceptable detection limit multipliers;
- acceptable matrix spike (MS) and matrix spike duplicate (MSD) recoveries;
- acceptable Relative Percent Difference between MS and MSD; and,
- acceptable surrogate recoveries where applicable.

8.0 RECEPTOR EVALUATION

During this investigation, a sensitive receptor evaluation was conducted in the immediate vicinity. This investigation focused on surface water receptors, groundwater supply wells, and downgradient basements.

The results of this evaluation indicated that there were no groundwater supply wells, other than the SITE well, within ½-mile of the SITE. The SITE supply well was sampled, the results indicating that the well has not been impacted by the release. Additionally, there is a rather thick silt/clay till layer present that is isolating the contamination in the shallow overburden materials, and preventing vertical migration into the bedrock aquifer.

The nearest surface water receptor that was identified was the unnamed wetland feature located approximately 200 ft ± to the northwest of the SITE. A visual reconnaissance was performed around the SITE in an attempt to identify groundwater seeps originating from the hillside downgradient of the former UST cavity that may potentially impact this wetland. No seeps were positively identified.

Finally, there are no basements in the immediate vicinity of the SITE. The SITE building and other structures in the immediate vicinity are concrete slab on grade.

9.0 SUMMARY AND CONCLUSIONS

Based on the information and analytical data obtained during this investigation, TSEC concludes the following:

- The source of the contamination, the former gasoline USTs, has been removed from the SITE.
- Soil and groundwater beneath the SITE has been impacted by a release of petroleum to the subsurface. The contamination plume originates from the former UST cavity, and extends predominantly to the north.
- Benzene, toluene, MTBE, naphthalene, 1,3,5-trimethylbenzene and 1,2,4-trimethylbenzene were detected at levels that exceed their respective VGES.
- No receptors in the immediate vicinity appear to be at risk from the contamination on SITE.

10.0 RECOMMENDATIONS

Due to the presence of contamination in both soil and groundwater at the SITE, TSEC recommends the following:

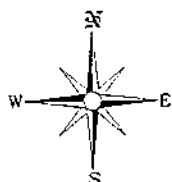
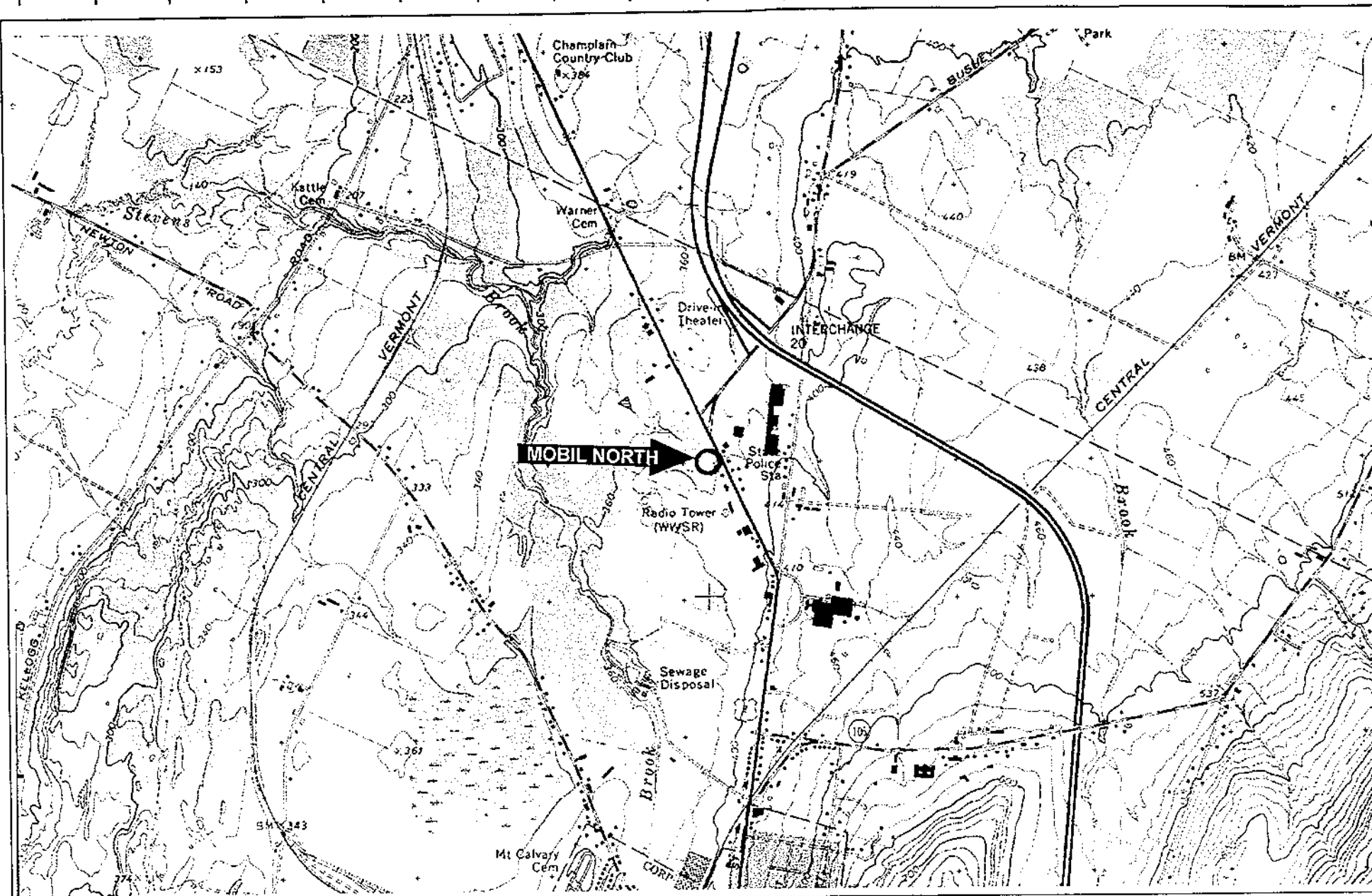
- Based on the extent of groundwater contamination present, a groundwater monitoring program is suggested. This program would include the quarterly sampling of the four (4) on-SITE groundwater monitoring wells and the SITE supply well for a period of one (1) year. Following one (1) year of sampling and the establishment of hydrogeologic and contaminant trends, the sampling frequency should be evaluated. If hydrogeologic trends are stable and contaminant trends are stable or decreasing, a less frequent monitoring interval may be recommended.

Monitoring well samples should be analyzed for VOCs via US EPA Method 8021B. The SITE supply well should be sampled for VOCs, and analyzed via US EPA Method 524.2.

- Additional groundwater monitoring wells should be installed to the north of monitoring wells MW-3 and MW-4 to characterize soil and groundwater contamination further downgradient of the existing groundwater monitoring well network.

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FIGURES



Source: USGS 7.5 Minute Topographic Series
St Albans, Vermont Quadrangle

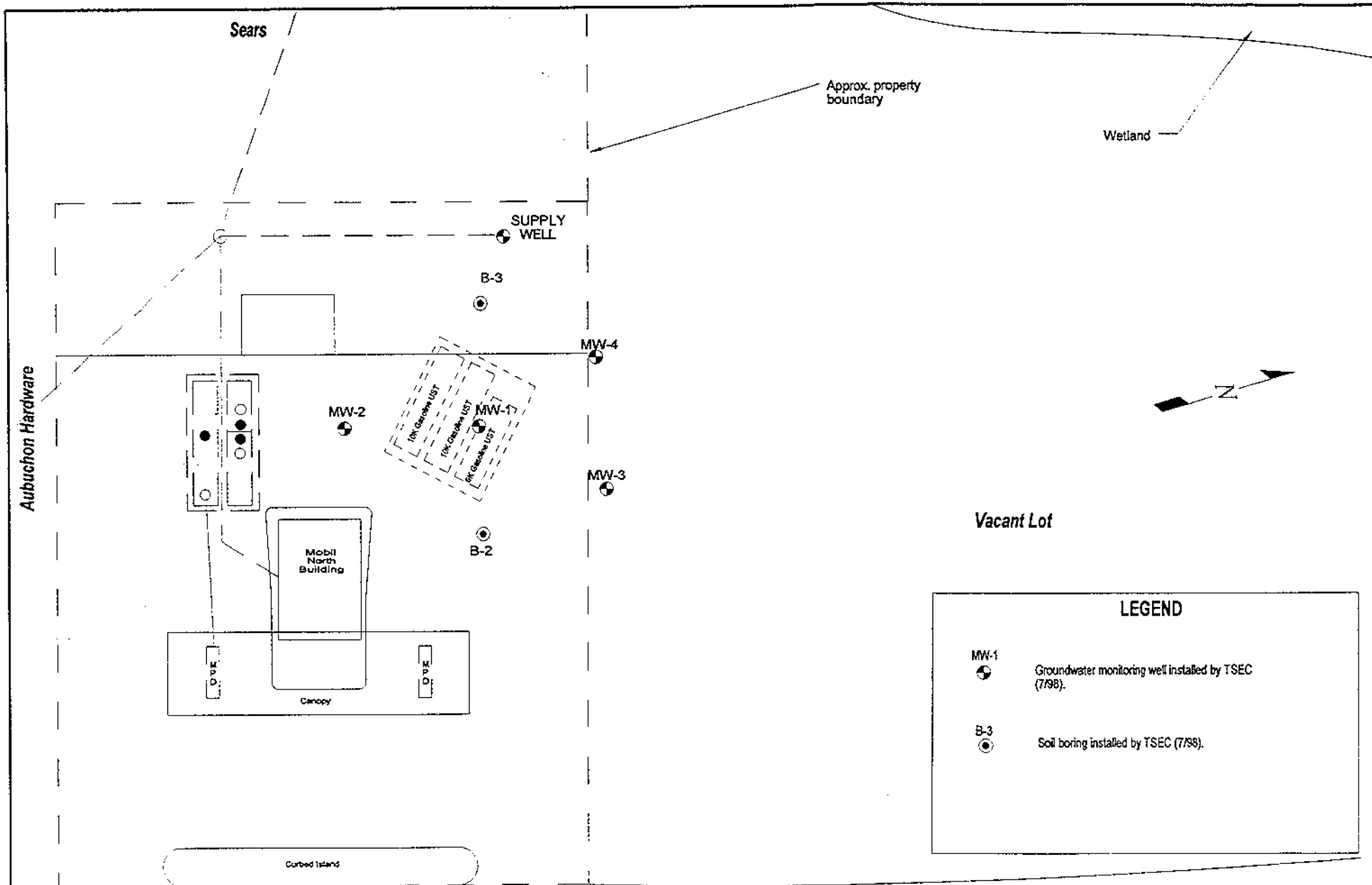
0 2000
Scale
(in feet) 1"=2,000'

Project No: 98-096	Designed By: jpb
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	Drawn By: jpb
	Scale: as shown
Date:	11/11/98

TWIN STATE ENVIRONMENTAL CORP.
65 Huntington Rd.
P.O. Box 719
Richmond, Vermont
(802) 434-3350

FIGURE 1
SITE LOCATION MAP

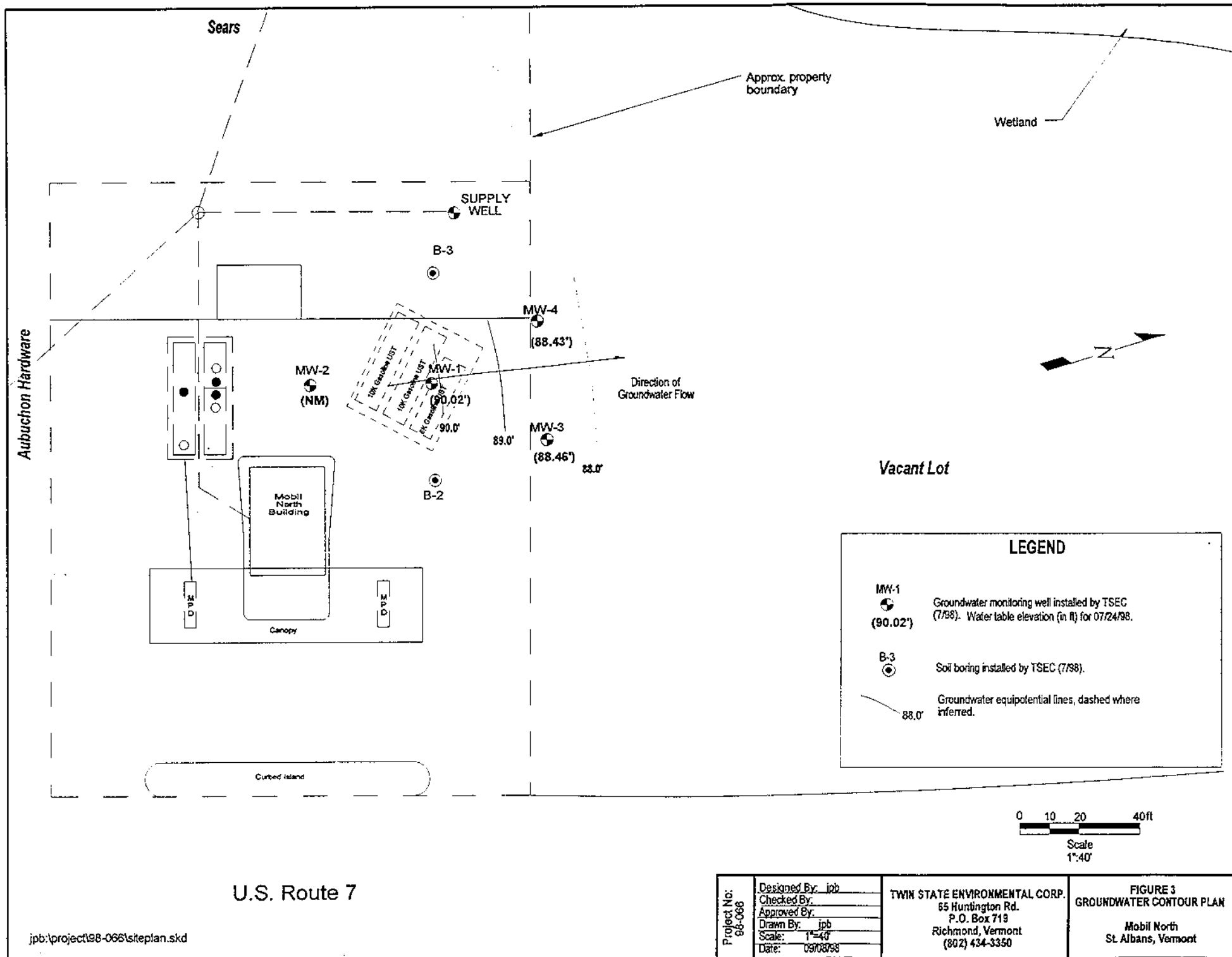
Mobil North
St. Albans, Vermont

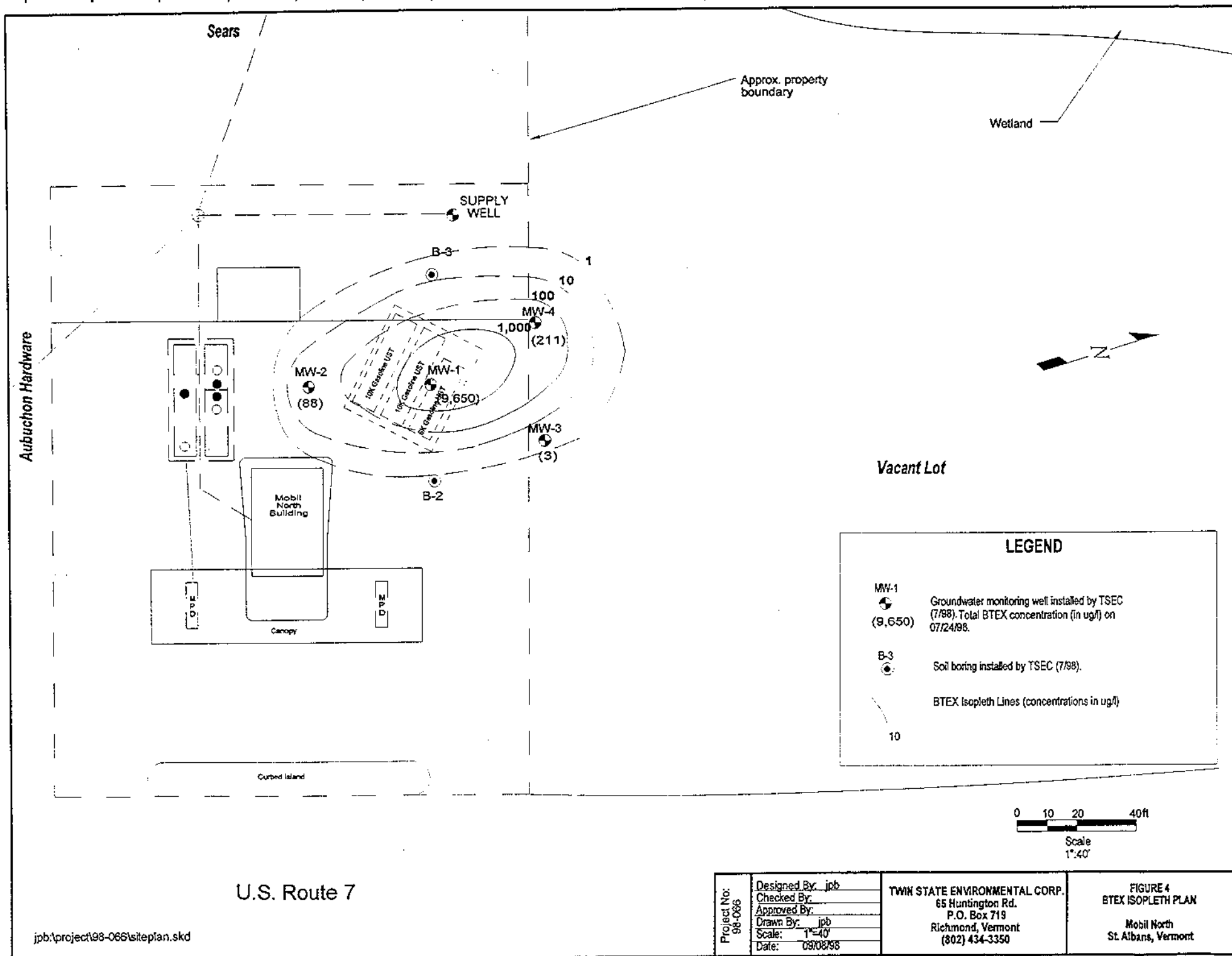


U.S. Route 7

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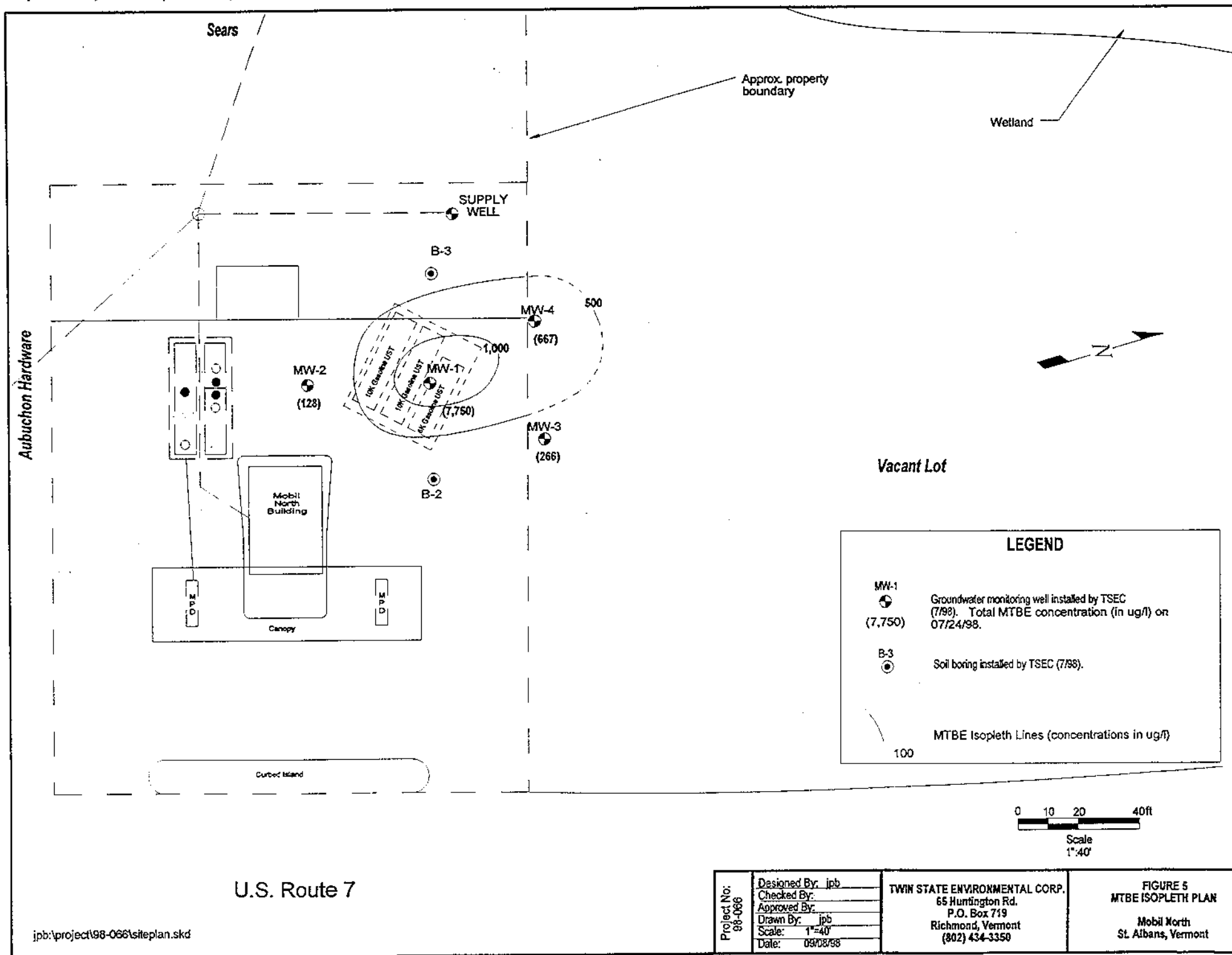
Project No: 88-066	Designed By: jpb	TWIN STATE ENVIRONMENTAL CORP. 65 Huntington Rd. P.O. Box 719 Richmond, Vermont (802) 434-3350	FIGURE 2 SITE PLAN Mobil North St. Albans, Vermont
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	Approved By:		
	Drawn By: jpb		
	Scale: 1"=40'		
	Date: 05/08/98		





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Project No: 98-066	Designed By: jpb	TWIN STATE ENVIRONMENTAL CORP. 65 Huntington Rd. P.O. Box 719 Richmond, Vermont (802) 434-3350	FIGURE 4 BTEX ISOPLETH PLAN Mobil North St. Albans, Vermont
	Checked By:		
	Approved By:		
	Drawn By: jpb		
	Scale: 1"=40'		
	Date: 09/08/98		



TABLES

TABLE 1
MOBIL NORTH
ST ALBANS, VERMONT
UST FACILITY #29

Summary of Groundwater Elevations

July 24, 1998

Well Identification	Top of Riser Elevation	Depth to Product	Depth to Water	Depth to Well	Thickness of Water in Well	Water Table Elev.
MW-1	97.95	ND	7.93	12.9	4.97	90.02
MW-2	98.23	NM	NM	NM	NM	NM
MW-3	96.57	ND	8.11	12.9	4.79	88.46
MW-4	96.48	ND	8.05	12.25	4.2	88.43

- Notes:
1. Elevation data is referenced to a TBM. Units are in feet.
 2. ND - not detected.
 3. NA - not applicable.
 4. Measurements recorded are referenced to a marking on top of PVC riser for each well.
 5. Depth to fluid measurements were obtained using a Solinst Interface Probe.

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TABLE 2
MOBIL NORTH
ST ALBANS, VERMONT
UST FACILITY #29

Summary of Groundwater Elevations

July 24, 1998

Sample ID	VGES	MW-1	MW-2	MW-3	MW-4	DUP-1	FB	Supply Well
Compound	Concentration (ug/l)							
Benzene	5.0	2,150	52.9	2.9	70.6	2,170	<1	<0.5
Toluene	1,000	1,770	4.5	<1	2.6	1,670	<1	<0.5
Ethylbenzene	700	TBQ<500	7.9	<1	98.4	TBQ<500	<1	<0.5
Total Xylenes	10,000	5,730	22.2	<1	39.6	4,850	<1	<1
Total BTEX	ne	9,650	88	3	211	8,690	—	—
1,3,5-Trimethylbenzene	4.0	TBQ<500	<1	<1	1.6	TBQ<500	<1	<0.5
1,2,4-Trimethylbenzene	5.0	1,750	<1	<1	49.3	1,430	<1	<0.5
Naphthalene	20	921	5.8	<1	3	913	<1	<1
MTBE	40	7,750	128	266	667	6,920	<10	<1

- Notes: 1. VGES - Vermont Groundwater Enforcement Standard.
2. ne - VGES not established.
3. **Bold and Italic** numbers indicate concentrations that exceed VGES.
4. DUP-1 - Duplicate sample of monitoring well MW-1. Collected for Quality Assurance/Quality Control.
5. All monitoring well samples were analyzed via US EPA Method 8021B. Supply well was analyzed via US EPA Method 524.2.

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APPENDIX A

MONITORING WELL/SOIL BORING LOG

MONITORING WELL/SOIL BORING LOG			
WELL/BORING NO:	B-1 / MW-1	WELL DEPTH:	13.5 ft bgs BORING DEPTH: 16.0 feet
PROJECT NAME:	Mobil North	DEPTH TO WATER:	7.93 ft bgs on 07/24/98.
PROJECT NO:	98-066	SCREEN DIA:	1½x½-inch DEPTH: 3.5-13.5 ft bgs
INSTALL DATE:	July 8, 1998	SCREEN TYPE/SIZE:	0.010-slot schedule 40 PVC
TSEC REP:	Jon Berntsen	RISER TYPE:	schedule 40 PVC
DRILLING CO:	TSEC	RISER DIA.:	½-inch DEPTH: 0.5-3.5 ft bgs
DRILLING METHOD:	Geoprobe®	GUARD TYPE:	Flush mount road box set in concrete.
SAMPLING METHOD:	Macrocore Sampler	RISER CAP:	Locking expansion plug.
REMARKS:	Boring was completed as a groundwater monitoring well.		

DEPTH IN FEET	WELL PROFILE	SAMPLE DEPTH (FT)	PID (PPMV)	BLOWS/6" AND RECOVERY	SOIL DESCRIPTION AND NOTES	LEGEND	
0		0-4	2,673	2.0 ft recovery	<u>0.0-1.0:</u> ASPHALT and crushed GRAVEL base.	CEMENT GROUT	
1					<u>1.0-1.9:</u> Silty fine SAND UST fill material. Brown/tan.	NATIVE BACKFILL	
2					<u>1.9-2.0:</u> Medium SAND. Brown, Heavy petroleum odor.	BENTONITE SEAL	
3						SAND PACK	
4			4-8	2,700+	2.0 ft recovery	<u>4.0-6.0:</u> Medium SAND. Brown/green. Dry. Heavy petroleum odor.	WELL SCREEN
5							RISER PIPE
6							
7							
8			8-12	573	1.7 ft recovery	<u>9.0-9.5:</u> Medium SAND. Brown. Less odor than above.	
9						<u>9.5-9.7:</u> Medium SAND with black petroleum staining. Wet at bottom.	
10							
11							
12			12-16	2,365	4.0 ft recovery	<u>12.0-14.0:</u> Coarse to very coarse SAND. Tan, saturated. Petro. sheen on water.	
13						<u>14.0-16.0:</u> Tight SILT/CLAY/GRAVEL till material. Dry at 15.0 ft.	
14				31.8			
15							
16					End of Sampling = 16.0 feet. End of Boring = 16.0 feet.		
17							
18							
19							
20							
21							
22							
23							
24							
25							

GRANULAR SOILS

BLOWS/FT	DENSITY
0-4	V.LOOSE
4-10	LOOSE
10-30	M.DENSE
30-50	DENSE
>50	V.DENSE

COHESIVE SOILS

BLOWS/FT	DENSITY
<2	V.SOFT
2-4	SOFT
4-8	M.STIFF
8-15	STIFF
15-30	V.STIFF
>30	HARD

PROPORTIONS USED

TRACE	0-10%
LITTLE	10-20%
SOME	20-35%
AND	35-50%

NOTES:

1. See Figure 2, SITE Plan, for boring locations

2. PID readings were obtained using a Thermo Environmental Instruments Model 580 B PID equipped with a 10.6eV lamp. Conventional headspace techniques were used.



TSEC 1885

CHAIN-OF-CUSTODY RECORD

98066

27934

124,627 - 124,623

Project Name: <i>Mobal North</i> Site Location: <i>St. Albans, VT</i>	Reporting Address: <i>Same as →</i>	Billing Address: <i>65 Huntington Rd Richmond, VT 05477</i>
Endyne Project Number: <i>TSEC1884</i>	Company: <i>Twin State Env.-Corp</i> Contact Name/Phone #: <i>Jon Bernstein</i>	Sampler Name: <i>Rod Lindsay</i> Phone #: <i>434-3350</i>

[illegible]

Relinquished by: Signature	Received by: Signature	Date/Time
Relinquished by: Signature	Received by: Signature M. D. Daulton	Date/Time 7-24-98 1600

New York State Project: Yes No

Requested Analyses

[illegible]



TWIN STATE ENVIRONMENTAL CORPORATION

65 Huntington Road, P.O. Box 719 Richmond, Vermont 05477
(802) 434-3350 FAX: (802) 434-4478

Page 1 of 1

MONITORING WELL/SOIL BORING LOG

WELL/BORING NO:	B-3	WELL DEPTH:	NA	BORING DEPTH:	16.0 feet
PROJECT NAME:	Mobil North	DEPTH TO WATER:	NA		
PROJECT NO:	98-066	SCREEN DIA:	NA	DEPTH:	NA
INSTALL DATE:	July 8, 1998	SCREEN TYPE/SIZE:	NA		
TSEC REP:	Jon Berntsen	RISER TYPE:	NA		
DRILLING CO:	TSEC	RISER DIA.:	NA	DEPTH:	NA
DRILLING METHOD:	Geoprobe®	GUARD TYPE:	NA		
SAMPLING METHOD:	Macrocore Sampler	RISER CAP:	NA		
REMARKS:	Boring was backfilled with cuttings, sand, and bentonite to grade.				

DEPTH IN FEET	WELL PROFILE	SAMPLE DEPTH (FT)	PID (PPMV)	BLOWS/6" AND RECOVERY	SOIL DESCRIPTION AND NOTES	LEGEND
0	N	0-4	<0.1	3.5 ft recovery	0.0-2.0: Silty medium SAND and gravel. Brown/tan.	CEMENT GROUT
1	O				2.0-3.0: Medium SAND, Brown/tan, dry.	
2					3.0-3.5: Tight silty SAND and gravel with trace of clay.	NATIVE BACKFILL
3	W					
4	E	4-8	<0.1	2.0 ft recovery	4.0-5.0: SILT and very fine SAND. Brown, dry.	BENTONITE SEAL
5	L				5.0-5.2: WOOD.	
6	L				5.2-5.9: Fine and Medium SAND. Tan, dry.	SAND PACK
7					5.9-6.0: WOOD.	
8	I	8-12	6.2	3.0 ft recovery	8.0-8.5: Silty medium SAND. Tan, Saturated.	WELL SCREEN
9	N				8.5-8.6: WOOD.	
10	S		3.1		8.6-9.5: Silty medium and very coarse SAND. Gray. Saturated at 9.5 ft bgs.	RISER PIPE
11	T					
12	A	12-16	1.9	4.0 ft recovery	12.0-14.0: Medium and coarse SAND. Tan, saturated.	
13	L				14.0-16.0: Tight SILT/CLAY/GRAVEL till material. Dry at 15.0 ft.	
14	L		<0.1			WATER LEVEL (APPROXIMATE)
15	E					
16	D				End of Sampling = 16.0 feet. End of Boring = 16.0 feet.	
17						
18						
19						
20						
21						
22						
23						
24						
25						
GRANULAR SOILS		COHESIVE SOILS		PROPORTIONS USED	NOTES: 1. See Figure 2, SITE Plan, for boring locations 2. PID readings were obtained using a Thermo Environmental Instruments Model 580 B PID equipped with a 10.6eV lamp. Conventional headspace techniques were used.	
BLOWS/FT	DENSITY	BLOWS/FT	DENSITY	TRACE		
0-4	V.LOOSE	<2	V.SOFT	LITTLE		
4-10	LOOSE	2-4	SOFT	SOME		
10-30	M.DENSE	4-8	M.STIFF	AND		
30-50	DENSE	8-15	STIFF			
>50	V.DENSE	15-30	V.STIFF			
		>30	HARD			



TWIN STATE ENVIRONMENTAL CORPORATION

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Page 1 of 1

MONITORING WELL/SOIL BORING LOG

WELL/BORING NO:	B-4 / MW-2	WELL DEPTH:	13.5 ft bgs	BORING DEPTH:	16.0 feet
PROJECT NAME:	Mobil North	DEPTH TO WATER:	Approx. 8.5 ft bgs on 7/8/98.		
PROJECT NO:	98-066	SCREEN DIA:	1½x½-inch	DEPTH:	3.5-13.5 ft bgs
INSTALL DATE:	July 8, 1998	SCREEN TYPE/SIZE:	0.010-slot schedule 40 PVC		
TSEC REP:	Jon Berntsen	RISER TYPE:	schedule 40 PVC		
DRILLING CO:	TSEC	RISER DIA.:	½-inch	DEPTH:	0.5-3.5 ft bgs
DRILLING METHOD:	Geoprobe®	GUARD TYPE:	Flush mount road box set in concrete.		
SAMPLING METHOD:	Macrocore Sampler	RISER CAP:	Locking expansion plug.		
REMARKS:	Boring was completed as a groundwater monitoring well.				

DEPTH IN FEET	WELL PROFILE	SAMPLE DEPTH (FT)	PID (PPMV)	BLOWS/6" AND RECOVERY	SOIL DESCRIPTION AND NOTES	LEGEND
0		0-4	4.1	3.5 ft recovery	0.0-1.0: ASPHALT and crushed GRAVEL base. 1.0-3.5: Silty SAND and gravel fill.	CEMENT GROUT
1						NATIVE BACKFILL
2						BENTONITE SEAL
3						SAND PACK
4		4-8	39.7	2.0 ft recovery	4.0-6.0: Silty SAND and GRAVEL fill material. Tough probing between 5.5 and 7.5 ft.	WELL SCREEN
5						RISER PIPE
6						
7						
8		8-12	NR	No recovery	8.0-12.0: No sample recovered from core.	
9						
10						
11						
12		12-16	<0.1	4.0 ft recovery	12.0-14.0: Medium to very coarse SAND. Saturated, tan. 14.0-16.0: Silty Till, with trace of gravel. Gray, dense, dry at 15.5 ft.	WATER LEVEL (APPROXIMATE)
13						
14						
15						
16					End of Sampling = 16.0 feet. End of Boring = 16.0 feet.	
17						
18						
19						
20						
21						
22						
23						
24						
25						
GRANULAR SOILS		COHESIVE SOILS		PROPORTIONS USED	NOTES: 1. See Figure 2, SITE Plan, for boring locations 2. PID readings were obtained using a Thermo Environmental Instruments Model 580 B PID equipped with a 10.6eV lamp. Conventional headspace techniques were used.	
BLOWS/FT	DENSITY	BLOWS/FT	DENSITY	TRACE		
0-4	V.LOOSE	<2	V.SOFT	LITTLE		
4-10	LOOSE	2-4	SOFT	SOME		
10-30	M.DENSE	4-8	M.STIFF	AND		
30-50	DENSE	8-15	STIFF			
>50	V.DENSE	15-30	V.STIFF			
		>30	HARD			



TWIN STATE ENVIRONMENTAL CORPORATION

65 Huntington Road, P.O. Box 719 Richmond, Vermont 05477
(802) 434-3350 FAX: (802) 434-4478

Page 1 of 1

MONITORING WELL/SOIL BORING LOG

WELL/BORING NO:	B-5 / MW-3	WELL DEPTH:	13.5 ft bgs	BORING DEPTH:	16.0 feet
PROJECT NAME:	Mobil North	DEPTH TO WATER:	Approx. 8.5 ft bgs on 7/8/98.		
PROJECT NO:	98-066	SCREEN DIA:	1½x½-inch	DEPTH:	3.5-13.5 ft bgs
INSTALL DATE:	July 8, 1998	SCREEN TYPE/SIZE:	0.010-slot schedule 40 PVC		
TSEC REP:	Jon Berntsen	RISER TYPE:	schedule 40 PVC		
DRILLING CO:	TSEC	RISER DIA.:	½-inch	DEPTH:	0.5-3.5 ft bgs
DRILLING METHOD:	Geoprobe®	GUARD TYPE:	Flush mount road box set in concrete.		
SAMPLING METHOD:	Macrocore Sampler	RISER CAP:	Locking expansion plug.		
REMARKS:	Boring was completed as a groundwater monitoring well.				

DEPTH IN FEET	WELL PROFILE	SAMPLE DEPTH (FT)	PID (PPMV)	BLOWS/6" AND RECOVERY	SOIL DESCRIPTION AND NOTES	LEGEND
0		0-4	<0.1	3.0 ft recovery	0.0-3.0: Silty SAND fill with trace of fine gravel. Tan, dry.	CEMENT GROUT
1						NATIVE BACKFILL
2						BENTONITE SEAL
3						SAND PACK
4		4-8	56.2	2.0 ft recovery	4.0-6.0: Silty SAND and GRAVEL fill material. Wood in core at 6.0 ft bgs.	WELL SCREEN
5						RISER PIPE
6						
7						
8		8-12	1.1	2.0 ft recovery	8.0-10.0: Silty medium to coarse SAND. Brown/tan. Saturated at 10 ft. Water was orange.	
9						
10						
11						
12		12-16	0.3	4.0 ft recovery	12.0-14.0: Medium to coarse SAND. Saturated, tan. 14.0-16.0: Silty Till, with trace of gravel. Gray, dense, dry at 15.5 ft.	
13						
14						
15						
16					End of Sampling = 16.0 feet. End of Boring = 16.0 feet.	
17						
18						
19						
20						
21						
22						
23						
24						
25						
GRANULAR SOILS		COHESIVE SOILS		PROPORTIONS USED	NOTES: 1. See Figure 2, SITE Plan, for boring locations 2. PID readings were obtained using a Thermo Environmental Instruments Model 580 B PID equipped with a 10.6eV lamp. Conventional headspace techniques were used.	
BLOWS/FT	DENSITY	BLOWS/FT	DENSITY	TRACE		
0-4	V.LOOSE	<2	V.SOFT	LITTLE		
4-10	LOOSE	2-4	SOFT	SOME		
10-30	M.DENSE	4-8	M.STIFF	AND		
30-50	DENSE	8-15	STIFF			
>50	V.DENSE	15-30	V.STIFF			
		>30	HARD			



TWIN STATE ENVIRONMENTAL CORPORATION

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Page 1 of 1

MONITORING WELL/SOIL BORING LOG

WELL/BORING NO:	B-6 / MW-4	WELL DEPTH:	13.5 ft bgs	BORING DEPTH:	16.0 feet
PROJECT NAME:	Mobil North	DEPTH TO WATER:	8.05 ft bgs on 7/8/98.		
PROJECT NO:	98-066	SCREEN DIA:	1 1/4 inch	DEPTH:	3.5-13.5 ft bgs
INSTALL DATE:	July 8, 1998	SCREEN TYPE/SIZE:	0.010-slot schedule 40 PVC		
TSEC REP:	Jon Berntsen	RISER TYPE:	schedule 40 PVC		
DRILLING CO:	TSEC	RISER DIA:	1/2-inch	DEPTH:	0.5-3.5 ft bgs
DRILLING METHOD:	Geoprobe®	GUARD TYPE:	Flush mount road box set in concrete.		
SAMPLING METHOD:	Macrocore Sampler	RISER CAP:	Locking expansion plug.		
REMARKS:	Boring was completed as a groundwater monitoring well.				

DEPTH IN FEET	WELL PROFILE	SAMPLE DEPTH (FT)	PID (PPMV)	BLOWS/6" AND RECOVERY	SOIL DESCRIPTION AND NOTES	LEGEND
0		0-4	<0.1	2.0 ft recovery	0.0-2.0: Silty SAND fill with trace of fine gravel. Tan, dry.	CEMENT GROUT
1						
2						
3						
4		4-8	22.4	4.0 ft recovery	4.0-7.5: Silty SAND and GRAVEL fill material.	NATIVE BACKFILL
5					7.5-8.0: Organic peat material. Dark brown.	BENTONITE SEAL
6						SAND PACK
7						
8		8-12	69.8	2.0 ft recovery	8.0-10.0: Silty medium to coarse SAND. Brown/tan. Saturated at 10 ft.	WELL SCREEN
9						
10						RISER PIPE
11						
12		12-16	0.8	4.0 ft recovery	12.0-14.0: Medium to coarse SAND. Saturated, tan.	
13					14.0-16.0: Silty Till, with trace of gravel. Gray, dense, dry at 15.5 ft.	
14						WATER LEVEL (APPROXIMATE)
15						
16					End of Sampling = 16.0 feet. End of Boring = 16.0 feet.	
17						
18						
19						
20						
21						
22						
23						
24						
25						
GRANULAR SOILS		COHESIVE SOILS		PROPORTIONS USED		NOTES: 1. See Figure 2, SITE Plan, for boring locations 2. PID readings were obtained using a Thermo Environmental Instruments Model 580 B PID equipped with a 10.6eV lamp. Conventional headspace techniques were used.
BLOWS/FT	DENSITY	BLOWS/FT	DENSITY	TRACE	0-10%	
0-4	V.LOOSE	<2	V.SOFT	LITTLE	10-20%	
4-10	LOOSE	2-4	SOFT	SOME	20-35%	
10-30	M.DENSE	4-8	M.STIFF	AND	35-50%	
30-50	DENSE	8-15	STIFF			
>50	V.DENSE	15-30	V.STIFF			
		>30	HARD			

ATTACHMENT 1



ENDYNE, INC.

AUG 7 1998

Laboratory Services

32 James Brown Drive
Williston, Vermont 05495
(802) 879-4333
FAX 879-7103

REPORT OF LABORATORY ANALYSIS

CLIENT: Twin State Environmental Corp.
PROJECT NAME: Mobil North
REPORT DATE: August 3, 1998
DATE SAMPLED: July 24, 1998

PROJECT CODE: TSEC1884
REF.#: 124,627 - 124,632

Enclosed please find the results of the analyses performed for the samples referenced on the attached chain of custody. Chain of custody indicated sample preservation with HCl.

All samples were prepared and analyzed by requirements outlined in the referenced method and within the specified holding times. All instrumentation was calibrated with the appropriate frequency and verified by the requirements outlined in the referenced method. Blank contamination was not observed at levels affecting the analytical results.

Analytical method precision and accuracy was monitored by laboratory control standards which included matrix spike, duplicate and quality control analyses. These standards were determined to be within established laboratory method acceptance limits.

Individual sample performance was monitored by the addition of surrogate analytes to each sample. All surrogate recovery data was determined to be within laboratory QA/QC guidelines unless otherwise noted.

Reviewed by,

Harry B. Locker, Ph.D.
Laboratory Director

enclosures

**ENDYNE, INC.****Laboratory Services**

32 James Brown Drive
Williston, Vermont 05495
(802) 879-4333
FAX 879-7103

EPA METHOD 602--PURGEABLE AROMATICS**CLIENT:** Twin State Environmental Corp.**DATE RECEIVED:** July 24, 1998**PROJECT NAME:** Mobil North**REPORT DATE:** August 3, 1998**CLIENT PROJ. #:** 98066**PROJECT CODE:** TSEC1884

Ref. #:	124,627	124,628	124,629	124,630	124,631
Site:	MW-1	MW-2	MW-3	MW-4	Dup-1
Date Sampled:	7/24/98	7/24/98	7/24/98	7/24/98	7/24/98
Time Sampled:	13:20	11:30	12:40	12:00	13:50
Sampler:	R.L.	R.L.	R.L.	R.L.	R.L.
Date Analyzed:	7/29/98	7/29/98	7/29/98	7/29/98	7/30/98
UIP Count:	5	> 10	0	> 10	5
Dil. Factor (%):	0.2	100	100	100	0.2
Surr % Rec. (%):	89	83	95	96	88
Parameter	Conc. (ug/L)	Conc. (ug/L)	Conc. (ug/L)	Conc. (ug/L)	Conc. (ug/L)
Benzene	2,150.	52.9	2.9	70.6	2,170.
Naphthalene	921.	5.8	<1	3.0	913.
1,2,4-Trimethylbenzene	1,750.	<1	<1	49.3	1,430.
1,3,5-Trimethylbenzene	TBQ < 500	<1	<1	1.6	TBQ < 500
Ethylbenzene	TBQ < 500	7.9	<1	98.4	TBQ < 500
Toluene	1,770.	4.5	<1	2.6	1,670.
Xylenes	5,730.	22.2	<1	39.6	4,850.
MTBE	7,750.	128.	266.	667.	6,920.

Ref. #:	124,632				
Site:	F.B.				
Date Sampled:	7/24/98				
Time Sampled:	10:30				
Sampler:	R.L.				
Date Analyzed:	7/29/98				
UIP Count:	0				
Dil. Factor (%):	100				
Surr % Rec. (%):	92				
Parameter					
Benzene	<1				
Naphthalene	<1				
1,2,4-Trimethylbenzene	<1				
1,3,5-Trimethylbenzene	<1				
Ethylbenzene	<1				
Toluene	<1				
Xylenes	<1				
MTBE	<10				

Note: UIP = Unidentified Peaks TBQ = Trace Below Quantitation NI = Not Indicated



TSEC 1885



98066

27934

124,627 - 124,623

Project Name: <i>Mobal North</i> Site Location: <i>St. Albans, VT</i>	Reporting Address: <i>Same as →</i>	Billing Address: <i>65 Huntington Rd Richmond, VT 05477</i>
Endyne Project Number: <i>TSEC1884</i>	Company: <i>Twin State Env. Corp</i> Contact Name/Phone #: <i>Jon Bernstein</i>	Sampler Name: <i>Rod Lindsay</i> Phone #: <i>434-3350</i>

[illegible]

Relinquished by: Signature	Received by: Signature	Date/Time
Relinquished by: Signature 	Received by: Signature 	Date/Time 7-24-98 1600

New York State Project: Yes No

Requested Analyses

[illegible]



ENDYNE, INC.

AUG 12 1998

Laboratory Services

32 James Brown Drive
Williston, Vermont 05495
(802) 879-4333
FAX 879-7103

REPORT OF LABORATORY ANALYSIS

CLIENT: Twin State Environmental Corporation
PROJECT NAME: Mobil North
DATE REPORTED: August 10, 1998
DATE SAMPLED: July 24, 1998

PROJECT CODE: TSEC1885
REF. #: 124,633

Enclosed please find the results of the analyses performed for the samples referenced on the attached chain of custody record.

Chain of custody indicated sample preservation with HCl.

All samples were prepared and analyzed by requirements outlined in the referenced methods and within the specified holding times.

All instrumentation was calibrated with the appropriate frequency and verified by the requirements outlined in the referenced methods.

Blank contamination was not observed at levels affecting the analytical results.

Analytical method precision and accuracy were monitored by laboratory control standards which included matrix spike, duplicate and quality control analyses. These standards were determined to be within established laboratory method acceptance limits.

Individual sample performance was monitored by the addition of surrogate analytes to each sample. All surrogate data was determined to be within Laboratory QA/QC guidelines unless otherwise noted.

Reviewed by,

Harry B. Locker, Ph.D.
Laboratory Director

enclosures



ENDYNE, INC.

Laboratory Services

32 James Brown Drive
Williston, Vermont 05495
(802) 879-4333
FAX 879-7103

LABORATORY REPORT

EPA METHOD 524.2

CLIENT: Twin State Environmental Corporation PROJECT CODE: TSEC1885
PROJECT NAME: Mobil North STATION: TAP-1
REPORT DATE: August 10, 1998 REF. #: 124,633
DATE SAMPLED: July 24, 1998 TIME SAMPLED: 11:00
DATE RECEIVED: July 24, 1998 SAMPLER: Rod Lindsay
ANALYSIS DATE: July 31, 1998

<u>Parameter</u>	<u>Detection Limit (µg/L)</u>	<u>Maximum Contaminant Level (µg/L)</u>	<u>Concentration (µg/L)</u>
Benzene	0.5	5.0	ND ¹
Bromobenzene	0.5	-----	ND
Bromochloromethane	0.5	-----	ND
Bromomethane	0.5	-----	ND
n-Butylbenzene	0.5	-----	ND
sec-Butylbenzene	0.5	-----	ND
tert-Butylbenzene	0.5	-----	ND
Carbon tetrachloride	0.5	5.0	ND
Chlorobenzene	0.5	100.	ND
Chloroethane	0.5	-----	ND
Chloromethane	0.5	-----	ND
(2&4)Chlorotoluene	1.0	-----	ND
1,2-Dibromo-3-chloropropane	1.0	0.2	ND
1,2-Dibromoethane	0.5	0.05	ND
Dibromomethane	1.0	-----	ND
1,2-Dichlorobenzene	0.5	600.	ND
1,3-Dichlorobenzene	0.5	-----	ND
1,4-Dichlorobenzene	0.5	75.0	ND
Dichlorodifluoromethane	0.5	-----	ND
1,1-Dichloroethane	0.5	-----	ND
1,2-Dichloroethane	0.5	5.0	ND
1,1-Dichloroethene	0.5	7.0	ND
cis-1,2-Dichloroethene	0.5	70.0	ND
trans-1,2-Dichloroethene	0.5	100.	ND
Dichloromethane	2.0	5.0	ND
1,2-Dichloropropane	0.5	5.0	ND



REF.#: 124,633

<u>Parameter</u>	<u>Detection Limit ($\mu\text{g/L}$)</u>	<u>Maximum Contamination Level ($\mu\text{g/L}$)</u>	<u>Concentration ($\mu\text{g/L}$)</u>
1,3-Dichloropropane	0.5	-----	ND
2,2-Dichloropropane	0.5	-----	ND
1,1-Dichloropropene	0.5	-----	ND
cis-1,3-Dichloropropene	0.5	-----	ND
trans-1,3-Dichloropropene	0.5	-----	ND
Ethylbenzene	0.5	700.	ND
Hexachlorobutadiene	0.5	-----	ND
Isopropylbenzene	0.5	-----	ND
4-Isopropyltoluene	0.5	-----	ND
Naphthalene	1.0	-----	ND
n-Propylbenzene	0.5	-----	ND
Styrene	0.5	100.	ND
1,1,1,2-Tetrachloroethane	0.5	-----	ND
1,1,2,2-Tetrachloroethane	1.0	-----	ND
Tetrachloroethene	0.5	5.0	ND
Toluene	0.5	1,000.	ND
1,2,3-Trichlorobenzene	0.5	-----	ND
1,2,4-Trichlorobenzene	0.5	70.0	ND
1,1,1-Trichloroethane	0.5	200.	ND
1,1,2-Trichloroethane	0.5	-----	ND
Trichloroethene	0.5	5.0	ND
Trichlorofluoromethane	1.0	-----	ND
1,2,3-Trichloropropane	0.5	-----	ND
1,2,4-Trimethylbenzene	0.5	-----	ND
1,3,5-Trimethylbenzene	0.5	-----	ND
Vinyl Chloride	0.5	2.0	ND
Total Xylenes	1.0	10,000.	ND
MTBE	1.0	-----	ND

NUMBER OF UNIDENTIFIED PEAKS: 0

Analytical Surrogate Recovery:

4-Bromofluorobenzene: 87.0%

1,2-dichlorobenzene-d4: 84.0%

NOTES:

1 None Detected



ENDYNE, INC.

LABORATORY REPORT

Laboratory Services

32 James Brown Drive
Williston, Vermont 05495
(802) 879-4333
FAX 879-7103

TRIHALOMETHANES BY EPA METHOD 514.2

CLIENT: Twin State Environmental Corporation PROJECT CODE: TSEC1885
PROJECT NAME: Mobil North STATION: TAP-1
REPORT DATE: August 10, 1998 REF. #: 124,633
DATE SAMPLED: July 24, 1998 TIME SAMPLED: 11:00
DATE RECEIVED: July 24, 1998 SAMPLER: Rod Lindsay
ANALYSIS DATE: July 31, 1998

<u>Parameter</u>	<u>Detection</u> <u>Limit ($\mu\text{g/L}$)</u>	<u>Maximum Contamination</u> <u>Level ($\mu\text{g/L}$)</u>	<u>Concentration</u> <u>($\mu\text{g/L}$)</u>
Bromodichloromethane	0.5	----	ND ¹
Bromoform	0.5	----	ND
Chloroform	0.5	----	ND
Dibromochloromethane	0.5	----	ND
Total Trihalomethanes		100.	ND

NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

ANALYTICAL SURROGATE RECOVERY:

4-Bromofluorobenzene: 87%
1,2-Dichlorobenzene-d4: 84%

NOTES:

1 None Detected



CHAIN-OF-CUSTODY RECORD

98066

27934

Project Name: <i>Mobile North</i>	Reporting Address:	Billing Address: <i>65 Huntington Rd.</i>
Site Location: <i>St. Albans, VT</i>	<i>Same as →</i>	<i>Richmond, VT 05477</i>
Endyne Project Number: <i>TSEC1885</i>	Company: <i>Twin State Env. Corps</i>	Sampler Name: <i>Rollinsday</i>
	Contact Name/Phone #: <i>Jon Bernstein</i>	Phone #: <i>434-3350</i>

[illegible]

Relinquished by: Signature	Received by: Signature	Date/Time
		7-24-98 1600

New York State Project: Yes No

Requested Analyses

[illegible]